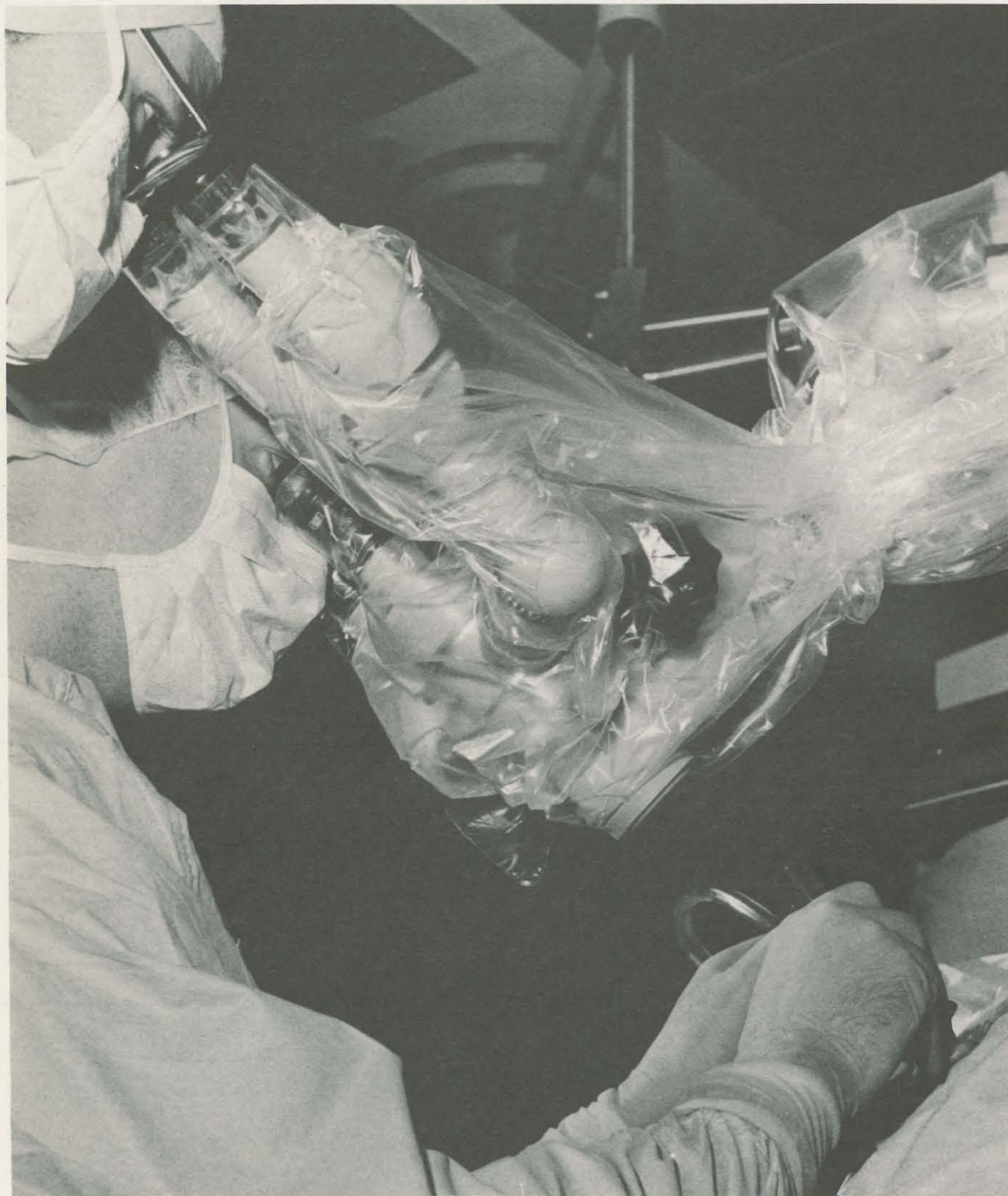


NAVY MEDICINE

May-June 1987



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COVER: LCDR Jeffery Deal, MC, performs micro ear surgery as LCDR Steven Butler, MC, observes through an operating microscope at the Bethesda Naval Hospital. Such advanced procedures are routinely performed at many naval hospitals thanks to the latest in medical technology. Photo by HM3 Michael W. Spencer, NSHS, Bethesda, MD.

Futurism and Navy Medicine

Looking into the future is a popular pastime these days for everyone from politicians to economists. We in Navy medicine also have good reason to prognosticate, aside from the medical and scientific advances we know are to be the product of research in the exciting years immediately before us.

In this issue of *Navy Medicine*, we are seeking to lay out the trends and important issues facing Navy medicine now and in the 1990's. This will be a time of great turbulence, decision, and opportunity for the Navy in general, and a challenging time for us in particular. We must begin making a blueprint for handling those challenges as part of the Navy's overall goals and objectives. It is essential that we align ourselves with the important trends required in the era of the 600-ship Navy. How else can we contribute to the readiness of that force whose health is so crucial to our combat effectiveness? There can be no separation of the Medical Department's goals from those of the overall force.

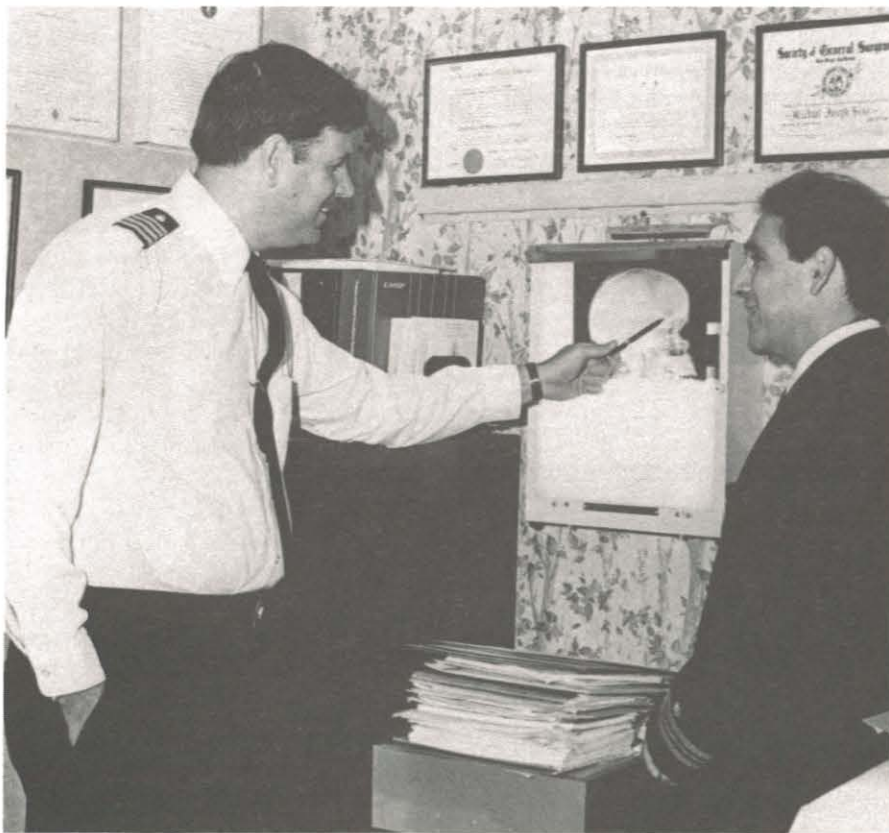
Our relationships with our patient population and the line Navy which we serve are similarly important and have also been addressed. This should be the beginning rather than the end of the planning, dialogue, and examination of our roles and missions in the decade ahead. It will be a time of challenge, excitement, and unprecedented growth in our knowledge.

Without question, our future will be an exciting one. It is in the nature of the times and of the issues which are ours to confront. The noise level will be pretty high as we compete for scarce resources but our key to meeting these challenges successfully is to recognize that they are there and to plan for them in advance. I know I can count on your help.

RADM Joseph S. Cassells (MC)

I intend that *Navy Medicine* be a forum for all in the Medical Department, a place where ideas and commentary can be published. It should be an idea exchange and testbed for professional thought. To that degree, it is clear that no one part of the Medical Department has a corner on the good idea market. Everyone has a contribution to make to the professional growth and understanding of his and her colleagues in this wide-ranging, intertwined series of professions. This magazine is and will continue to be the sounding board for all segments of Navy medicine. It needs the infusion of the best thought and contributions from all sides.

Plastic Surgery and Navy Medicine



Drs. Garrigues (left) and William Mora review an X-ray of a human skull.



It's one of the smallest disciplines in the medical field.

It has approximately 3,000 members that are board-certified.

Its members were either prior general surgeons, orthopedic surgeons, or otolaryngology surgeons.

It is such a small discipline that the Navy has but six of them.

One is CAPT Ned Garrigues (MC), head of the Plastic Surgery Division at Naval Hospital, San Diego, CA. The division has two plastic surgeons, one resident-trainee, a civilian secretary, and six hospital corpsmen.

What is plastic surgery? According to Dr. Garrigues, plastic surgery had its origins in the military when an organized group of surgeons decided to concentrate on the specialty.



Dr. Mora examines Fireman Apprentice Robin Wilson, a patient who suffers from a cleft palate.

World War II, thanks to the use of antibiotics. As they began to see increased survival rates during World War I, surgeons from several disciplines got together and formed the specialty of plastic surgery. Most of these doctors were general surgeons dealing with severely injured patients. Many, however, had backgrounds in throat, orthopedic surgery, or dental.

When a sailor says, "Gosh, I didn't even know that there are plastic surgeons in the Navy!" or when people say, "Why are there plastic surgeons in the Navy? What is this, the U.S. Navy or Beverly Hills? What do you people do, facelifts?," Dr. Garrigues quickly points out that plastic surgery was developed in the military as a reconstructive surgical specialty. "That's the key. Reconstruction of body parts so that they look like normal and they work like normal," he said.

Plastic comes from the Greek word "plastikos" which comes from "plassein" which means to mold or form. But according to Dr. Garrigues, it doesn't mean that plastic is actually used. However, he readily admits that in certain situations, plastic could be used to help rebuild a skull or some other part of the body.

The four main parts of plastic surgery are commonly referred to as the four C's. They are casualty or trauma, congenital, cancer, and cosmetic. When placed in order of importance, the Navy plastic surgeon ranks casualty or trauma first.

"Casualty or trauma surgery means that we repair those types of injuries we consider traumatic. Some examples could be facial injuries, facial fractures, badly injured or broken jaws,

one or both ears or noses torn off," explained Garrigues. "What we mean by traumatic, is those types of injuries deemed life-threatening and requiring immediate attention," he continued.

Following casualty or trauma is congenital or birth defects. "We see a lot of kids with birth defects, especially those with cleft palates. However, I'd like to point out that kids aren't the only ones we see with cleft palates; we see a number of adults too," Garrigues said.

The third "C" in plastic surgery is cancer. "This would include reconstruction of cancer defects such as cancer of the throat or tongue where we would literally reconstruct a functional tongue for a patient," said Garrigues. "Obviously, the congenital or birth defects and the cancer deformities have to come behind injuries because we are here, foremost, to take care of the injured active duty person."

The last "C," cosmetic, comes in a distant fourth in the hierarchy.

Dr. Garrigues feels that the primary aim of plastic surgery, whether it be cosmetic or otherwise, is that the reconstructed part functions and looks as close to normal as possible. "When the plastic surgeon reconstructs a patient's forehead by using bone from that patient's hip or when a kid suffers a congenital defect such as a cleft palate and the plastic surgeon fixes it, some people may construe that as being cosmetic. The plastic surgeon looks at it differently. We want that person to feel accepted in society again," Dr. Garrigues concluded. □

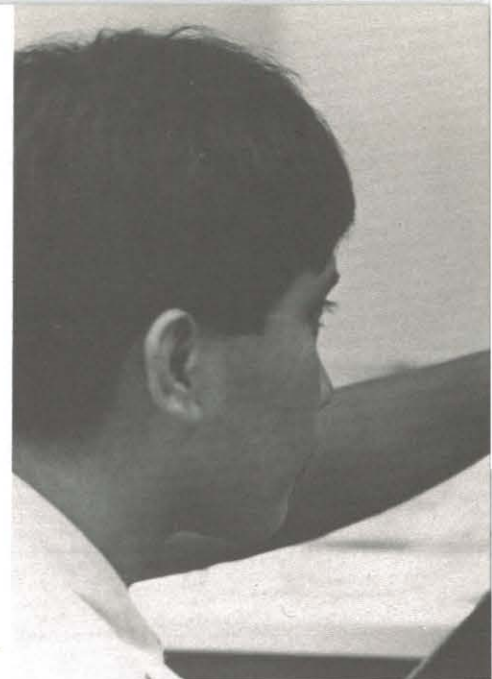
—Story by JO1 J. Kevin Wells, Naval Medical Command, Southwest Region.

During World War I most of the fighting was done from trenches. Soldiers were sticking their faces and hands out of the trenches and sustaining injuries to those areas of the body. The face and hands are, of course, delicate structures and need specialized techniques to repair them.

Before World War I, the emphasis was on surviving the battlefield casualty. A man might be missing his jaw or have a severely injured hand but, because this was prior to the time of antibiotics, and the techniques of modern medicine had just begun to advance, the emphasis was on the care of his wounds and not cosmetics.

Improved survival rates became possible during World War I and to an even much greater extent during

Eclavea "sizes" up the prosthetic eye with the natural eye.



An Eye for Aida

Fifteen-year-old Aida Balunso of Albay Province, Republic of the Philippines, can now hold her head up and face the world with two eyes. And, she can thank DT2 Eric Eclavea for it. The 33-year-old Philippine native works as a maxillofacial prosthetic technician in the dental lab aboard the Navy's newest hospital ship, USNS *Mercy*, currently on a 5-month training and humanitarian cruise to the Philippines and other South Pacific island nations.

"We found Aida during the patient screening process in Legazpi City

shortly after the ship anchored off shore," said Eclavea. "She had a cataract operation on her left eye last August that became infected. The eye unfortunately had to be removed and her family was unable to afford a false eye. We told her that we could have a prosthetic eye made for her in a few days."

Aida was Eclavea's first patient since he graduated from the Maxillofacial Prosthetic School at Bethesda Naval Hospital, Bethesda, MD.

"I read about the upcoming cruise of the *Mercy* to the Philippines while still

in school, and I asked the director of the school CAPT Donald Mitchell to help me get on the crew. I felt it was a great opportunity to help my fellow countrymen," he said.

Navy dental technicians do all facial prosthetic work because the materials used to make prostheses are the same as those used to make dentures and bridges. Eclavea is one of seven maxillofacial prosthetic dental techs currently serving in the Navy.

"Besides eyes we can make prosthetic ears, noses, and oculo-facial prostheses," said Eclavea.



Aida's "new" eye is carefully painted to match the color of her natural eye.



Aida with her new prosthetic left eye.



Making an eye for Aida was an eight-step process. "First we made an impression of her eye socket. Then an acrylic mold of the impression is made from which a wax pattern takes shape. The final prosthesis is heat-cured plastic which is painted (including blood vessels). Then acrylic is added and it is polished and buffed," he said.

Several fittings and finishing steps were required to make sure of a proper fitting in the socket. All the while Aida was visibly anxious to see the final result. After Eclavea and CDR Dennis Anderson, a maxillofacial surgeon, were satisfied with the final adjustment, a mirror was brought to Aida.

At first no words, just a broad, bright smile that said everything. Then after awhile she said, "I thought I would never have another eye. I am very happy and grateful. You've made me the happiest girl in the world."

"I can't express how I felt about Aida," Eclavea said. "You always see a dramatic personality change when you do something like this for someone. You're changing their lives. I hope to be able to help more deserving people like her."

When the *Mercy* returns to her homeport of Oakland, CA, in July, Eclavea will be stationed at Naval Hospital, San Diego. □

—Story and photo by PHC Chet King, Seventh Fleet Public Affairs.

Undersea Medical Society Changes Name

The Undersea Medical Society has changed its name to the Undersea and Hyperbaric Medical Society (UHMS) to reflect the emerging importance of hyperbaric medicine and the large number of hyperbaric medicine specialists who are joining the Society.

The UHMS is a nonprofit organization serving over 2,000 members worldwide, including over 400 members from China, Australia, Japan, Europe, and elsewhere outside the United States. Most UHMS members are diving or hyperbaric scientists and physicians. Hyperbaric medicine nurses and technicians, as well as sport divers and students comprise a substantial group of associate members.

When the organization was founded as the Undersea Medical Society in 1967 (incorporated in 1972), its prime objective was to develop channels of scientific communication among researchers dedicated to the safe penetration of the oceans. The UHMS has gradually expanded its objective beyond diving medicine and physiology to include hyperbaric oxygen (HBO) as well.

Once strictly the purview of the diving world, HBO therapy now is standard operating procedure in some hospitals. This therapy, in which 100 percent oxygen is breathed by a patient at higher-than-normal atmospheric pressures for short periods of time, is now being done by professionals who are not necessarily former divers. It is these professionals who are rapidly expanding the ranks of UHMS membership.

The Society's journals, *Undersea Biomedical Research* and the *Journal of Hyperbaric Medicine*, publish quality, peer-reviewed research on the physiology and clinical applications of diving and hyperbaric medicine. Their ultimate objective is to provide scientific information to protect the health of sport, military, and commercial divers and to improve HBO research and treatment protocols for divers and nondivers alike.

The UHMS provides its members with current diving physiology and diving and hyperbaric medicine information via its two journals, workshop reports, literature searches and bibliographies, books, triennial research symposia, and annual scientific meetings.

Through its workshops and publications, the Society sets guidelines relevant to diver health and HBO therapy. Two workshops held in 1986 set guidelines for determining a diver's physical fitness to dive and for assessing the special concerns of women divers. These guidelines are based on the experience of a group of experts and a review of research on the physiological effects of pressure, various breathing gases, and immersion.

Another set of guidelines recently published by the Society, *Revised Edition: HBO Committee Report*, suggests HBO treatment protocols for accepted conditions such as burns, wound healing, and carbon monoxide poisoning. Experimental conditions, for which more research is needed, such as sickle cell anemia, multiple sclerosis, and spinal cord injury, are also addressed in the Report.

Ulcerative Colitis:

A Review (Part 2)

LT Steven E. Swartz, MC, USNR
CDR Adam M. Robinson, MC, USN

Surgical Therapy

Surgical treatment of ulcerative colitis by colectomy is often curative of this disease.⁽¹⁸⁾ While surgery can be curative, it is also necessary to tailor the surgical procedure to the particular patient.⁽¹⁸⁾ In doing this there are several considerations to address. The first objective in surgery for ulcerative colitis is to remove all of the colon and rectum, if possible. Keeping that objective in mind, it is necessary to do the operation that can be best tolerated physiologically by the patient, that provides the fewest complications post-operatively, and that is most compatible with the patient's lifestyle.

The procedures that are done range from simple ileostomy and venting of the colon (Turnbull procedure),⁽²⁴⁾ described for emergency use in toxic megacolon, to total abdominal colectomy with or without a continent pouch. There is the possibility in some patients of retaining anal continence and avoiding ileostomy. It is important to note that the more complex the surgery, the greater the risk. Therefore, the patient's ability to withstand surgery must be considered. Thus, colectomy and ileostomy may be lifesaving in very sick patients, while in otherwise young, healthy patients a complex procedure with total abdominal colectomy, rectal mucosectomy, ileal pouch formation, and ileoanal anastomosis may well be tolerated.

Indications for Surgery

The usual indications for operative treatment of ulcerative colitis are listed in Table 1. Each of these indications will be discussed individually.

Toxic megacolon occurs in approximately 6-9 percent of admissions for acute ulcerative colitis.⁽²⁾ These extremely

sick patients present with abdominal distension, pain, decrease in bowel sounds, and frequently decreased number of stools per day. This is one notable exception to using the number of stools to follow the progress of the patient. These patients will deteriorate rapidly and have marked decrease in the number of stools. They may also present with a decrease in their mental status. The mortality of patients with toxic megacolon is approximately 25 percent despite the most intensive medical-surgical therapy, so it is important that these patients be recognized early and treated aggressively. There is no "magic number" that defines megacolon.

It is incumbent upon the physician to recognize that the patient who is deteriorating, especially with the symptoms above, and an enlarging colon on X-ray film, is developing toxic megacolon. The range for normal sizes for the colon are less than 14 cm for the cecum and less than 10 cm for the transverse colon. The danger of following numbers is that perforation may occur without dilation, necessitating surgical intervention.

The treatment of toxic megacolon must be intensive and aggressive. These patients need to be fluid resuscitated. They may need plasma, blood transfusions, and nutritional therapy. They may require steroid supplementation if they have been on chronic steroids, and probably need perioperative antibiotics. Most importantly, these patients need a combined medical and surgical approach with both the gastroenterologist and the surgeon consulting on the patient.

Toxic megacolon is an indication for emergency surgery. Historically, there are several procedures which have been done for toxic megacolon. ⁽²⁾ The classic procedure was described by Turnbull,⁽¹⁹⁾ who performed ileostomy with transverse and sigmoid colostomies for venting. This was followed by colectomy at a later time. In Turnbull's original description his patients had 4-8 percent mortality, which was approximately 1/3 to 1/4 the mortality previously reported in surgery for toxic megacolon. This procedure is still used today in select patients that are

Dr. Swartz is a resident in the Department of General Surgery, Naval Hospital, Bethesda, MD 20814-5011. Dr. Robinson is head, Division of Colon and Rectal Surgery, Naval Hospital, Bethesda, and assistant professor of surgery at the Uniformed Services University of the Health Sciences, Bethesda, MD 20814.

extremely ill, have not yet progressed to free perforation of their colon, and are felt not to be physically able to withstand colectomy.

As stated before, removal of the entire colon and rectum is the objective in surgery for patients with ulcerative colitis, but the decision of whether or not to remove the rectum in a patient with toxic megacolon can be difficult. It is generally felt for these seriously ill patients that a total abdominal colectomy and ileostomy is the preferred procedure. This allows for shorter operating time and fewer immediate complications for the patient postoperatively, but may require a later proctectomy.

Perforation of the large intestine is another complication of acute ulcerative colitis requiring emergent surgical intervention. It is important to remember that perforation of the colon can occur with or without signs of megacolon; there may be no evidence of distension of the bowel.

It has been suggested in the past that there is an increased risk of perforation of the large intestine in patients receiving steroids for ulcerative colitis. Several studies addressing this problem have concluded that there is no increased risk of perforation on patients taking steroids; however, there is increased incidence of very sick patients more likely to perforate who are placed on steroids.(2) The problem that does exist in the colitis patient on steroids is that steroids may mask the symptoms as they are perforating their colon. Therefore, patients with acute exacerbations of ulcerative colitis on steroid therapy must be watched very closely and any sign of patient deterioration should be taken as a possible symptom of perforation of the large intestine.

The treatment of perforation is essentially the same as toxic megacolon. Again, they require aggressive medical and surgical resuscitation and treatment. The standard surgical procedure is colectomy with or without proctectomy depending on the status of the patient, difficulty of the dissection, and degree of contamination of the abdomen.

Massive hemorrhage is a rare cause of emergency surgery in patients with ulcerative colitis. While rectal bleeding is one of the more common symptoms, massive blood loss that cannot be maintained through transfusion and medical therapy is extremely unusual. The most important aspect in surgery for massive hemorrhage of

ulcerative colitis is that, if at all possible, the rectum must also be excised to avoid continued postoperative bleeding from the rectal mucosa.

Patients with ulcerative colitis have a greatly increased incidence of developing adenocarcinoma of the colon. (20) In those patients who develop frank malignancies, there is also an increased incidence of multiple primaries, advanced anaplastic disease, and metastases at the time of operation.(20) This is felt to be related to delay in diagnosis secondary to the masking of symptoms of colon malignancy by symptoms of ulcerative colitis, but may be related to the underlying disease process.

The risks of developing malignancy in patients with ulcerative colitis are no greater than for the general population for approximately the first 10 years of the disease. However, after 10 years it has been estimated that the chances of developing malignancy become about 1 percent per year. This incidence of colon cancer increases to 2 percent per year after the second 10 years.(20) The incidence of colon cancer in patients who present with ulcerative colitis under the age of 20 is increased even above these numbers. Those patients with left-sided disease or proctosigmoiditis have a very low-to-normal incidence of carcinoma; the high incidence of carcinoma of the colon is for those patients noted to have pancolitis.

Because of this increased risk of colon cancer, Lennard-Jones et al. in 1977 described a protocol for following ulcerative colitis patients with colonoscopy yearly with multiple random biopsies of the colon to detect premalignant changes.(21) They found that a finding of severe dysplasia in biopsy warranted a second biopsy in 2-3 months. If the biopsies again showed severe dysplasia despite medical therapy, colectomy was recommended. In patients undergoing colectomy for severe dysplasia they found occult carcinoma in one-third. Of those patients operated on for frank malignancy, 80 percent were found to have severe dysplasia distant from their cancer.

Patients with premalignant changes or severe dysplasia are one group that may undergo elective surgery for ulcerative colitis. The other group which may undergo an elective or semielective procedure are those patients with intractable disease. Intractability in ulcerative colitis is difficult to define because of the natural history of remissions and exacerbations of the disease. Intractability would certainly include patients who are chronically steroid-dependent and have severe exacerbations on weaning from steroids, as well as those patients in whom good control is not achieved using steroids and Azulfidine in their maximal dosages. The difficulty in defining control of disease is that some patients may be relatively comfortable with the small amount of rectal bleeding and up to 20 bowel movements per day as long as they do not become anemic or emaciated. This group of elective patients then makes available the wide gamut of operations for ulcerative colitis.

The standard operation for ulcerative colitis is proctocolectomy with ileostomy. Historically, patients have dis-

TABLE 1
Indications for Surgery

A. Emergent

1. Toxic megacolon
2. Perforation
3. Massive hemorrhage

B. Elective

1. Carcinoma
2. Severe dysplasia
3. Intractability

liked ileostomies because of difficulties with appliances, skin breakdowns, and the multiple complications of ileostomy. Advances in ostomy care, appliances, and surgical technique over the past 10-15 years, however, have made ileostomy a more tolerable option for patients. Many patients, especially young patients and female patients, remain desirous of avoiding ileostomy, if possible, for cosmetic reasons. Other patients are interested in continence procedures with or without the ileostomy to avoid the necessity of wearing a bag. Basically, three continence procedures have been proposed.

The Koch pouch or continent ileostomy is a procedure in which a pouch is formed from ileum proximal to an ileostomy that allows a patient to store the fecal material until it can be drained by self-catheterization.⁽²²⁾ Two anal continence procedures that have been described are ileoanal anastomosis and ileoanal pouch formation.⁽¹⁸⁾

Ileoanal anastomosis was originally tried in the 1960's and abandoned because of difficulties with chronic diarrhea and skin breakdown around the anus. The ileoanal pouch has had success, although patients undergoing this procedure must understand that it is essentially a calculated risk. The pouch is formed as either a J pouch or an S pouch, using terminal ileum at the time of the colectomy and rectal mucosectomy. The ileoanal anastomosis is made and the pouch is placed in the pelvis and defunctionalized with diverting ileostomy. Approximately 2 months postoperatively a gastrograffin study of the pouch is done to ascertain whether or not there is a postoperative leak. If not, the patients are then scheduled for ileoileal anastomosis. Candidates for this procedure should be selected to allow for the fewest complications with procedure.⁽¹⁸⁾ The patients are generally young (less than 40 years old), otherwise healthy, and have a secure diagnosis of ulcerative colitis. Patients who are suspected of having Crohn's disease are not candidates for any kind of pouch procedure because of a high complication rate and pouch leakage rate in these patients.⁽²³⁾

Patients desiring a pouch procedure should also have intact anal sphincters, a minimum of perianal complications, and the willingness to undergo up to 1 year of rehabilitation. The pouch procedure is fraught with complications, including pouch anastomotic leak, inflammation of the pouch after connection to the fecal stream, as well as chronic diarrhea and incontinence. These patients also have a high rate of small bowel obstruction postoperatively with reoperation for adhesions. If the patient makes it smoothly through to reanastomosis he or she can expect 10-15 bowel movements per day which will decrease to approximately 6-7 bowel movements per day on the average at 3 months postoperatively. At 1-year postoperatively, the average patient will have four bowel movements per day and no soilage during the day.^(18,23,24) However, there may be some soilage and occasional stools at night.

In a series reported by Fonkasrud of patients with ileoanal pouch procedures at UCLA, after 1 year 78 percent

were continent of gas and stool during the day, 18 percent had minor seepage, and 4 percent were frankly incontinent.⁽²⁴⁾ An advantage of this procedure is that the patients have a functioning ileostomy for 2-3 months after their colectomy. The experience of having lived with and cared for an ileostomy, as well as their sphincter-saving procedure, gives them the chance to compare the results. Those patients not satisfied with their continence preserving procedure have a better understanding of what to expect with an ileostomy.

Interestingly, in doing the rectal mucosectomy and colectomy for ulcerative colitis, there is a far lower incidence of sexual dysfunction than in patients undergoing these operations for malignant disease. The reported incidence of sexual dysfunction in males undergoing rectal mucosectomy is less than 3 percent.⁽²⁵⁾ The reason behind this is the wider dissection that must be done when operating for a tumor versus operating to remove only the rectal mucosa.

Operative Mortality

The published incidence of operative mortality of patients undergoing surgery for ulcerative colitis varies greatly depending on whether the surgery is emergent, urgent, or elective.⁽²⁾ The rates for elective surgery are approximately 2-3 percent, which is significant. The urgent rates range from 10 to 15 percent, and the emergent rates from 20 to 30 percent in patients with ulcerative colitis. Therefore, patients with ulcerative colitis should ideally be treated before they become emergent cases with toxic megacolon or perforation of the colon. The mortality is also related to the extent of the surgery undertaken and the general overall status of the patient, including nutritional status and associated problems. In an emergent patient it is most efficacious to do an operation to save the patient's life and to preserve the continence and sphincter-saving operations for those patients undergoing elective surgery. It is also necessary that all ulcerative colitis patients receive good preoperative evaluation and maximization of their status before going to the operating room.

Conclusion

Ulcerative colitis is a complex disease that requires regular followup and supervision of the patient. It is a disease of exacerbations and remissions, and the patients will go for long periods requiring very little adjustment in medications, and other times it will require frequent attention by their physicians. The medical management of ulcerative colitis is constantly changing, which makes it extremely important that each patient have an experienced gastroenterologist to follow their progress and maximize their therapy. It is equally important that patients with severe exacerbations of this disease, or patients with chronic long-term disease, be referred for surgical consultation early so that they may be followed by the gastroenterologist and their surgeon to receive the best possible care.

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Law of War Course

Navy medical personnel should be aware of a unique opportunity for specialized training in their rights and responsibilities under the law of war. The Headquarters Marine Corps Law of War Reserve Augmentation Unit conducts four to six 1-week courses in the law of war each year at various locations on the east and west coasts. The course is offered in compliance with DOD Directive 5100.77 and Marine Corps Order 3300.3 to implement law of war training obligations under the 1949 Geneva Conventions and other international agreements. The Navy analogue is SECNAVINST 3300.1A.

The course is presented in lecture format with seminar discussions and guest lecturers. The level of instruction is directed toward bat-

alion and squadron commanders, judge advocates, and staff officers whose duties involve law of war issues. Students are provided a course deskbook and other texts, which are theirs to retain upon completion of the course. Although offered at locations such as Newport, RI, and Coronado, CA, the training is not a "gentleman's course." Students must complete reading assignments, seminar problems, and a final exam.

The instructors have significant civilian and military expertise in the law of war and several are considered leading experts in their areas of instruction. Many of the instructors combine law of war expertise with Marine Corps combat arms backgrounds. The performance of the unit was recently recognized by the

Secretary of the Navy when he awarded it the Meritorious Unit Commendation.

The goal of this training is to make members of the armed forces aware of their rights and responsibilities under the law of war in armed conflict. Of particular relevance to members of the Navy medical community are the law of war protections of medical personnel, units, installations, transport and patients, and issues such as the legal priority of medical treatment and the use (and abuse) of protective emblems.

For additional information regarding schedules and quotas call the Training Department (Code TDE), Headquarters Marine Corps on Autovon 224-2068 or Commercial (202) 694-2068.

Navy Medicine

Competitiveness and Challenge in the 1990's

RADM Joseph S. Cassells, MC, USN

"Competitiveness" is the great buzzword of recent years, the umbrella phrase for those things which America must do to meet the challenges of foreign competition. It is the symbol of the need to change direction and emphasis in our society; to do more, be more efficient and operate more productively. We in Navy medicine face our own need for competitiveness in the decade ahead, one which brings us into closer cooperation with operational commanders and the line leadership on issues critical to the long-term readiness and effectiveness of the Navy and Marine Corps.

Rapid, significant change is no stranger to us in medicine. Medical knowledge has been doubling every 5 years, providing a continuing challenge to remain at the leading edge of professional capability. In Navy medicine, we have the additional responsibility to operate successfully in diverse environments unlike those of anyone else in the profession. We must continue to be more ingenious, more flexible, and more resourceful than many in our profession who do not face these situations.

Dr. Cassells is Commander, Naval Medical Command (MEDCOM 00), Washington, DC 20372-5120.

Medical Role in the Total Navy

Navy medicine plays a complex and growing role in the readiness of America's naval forces. Never have expectations by operational commanders been greater. Our combat support capability, our resiliency as a medical force, and our ability to return casualties to duty are important considerations which affect overall force readiness. In an asset-constrained environment, we must maintain a difficult balance to ensure that we are meeting the treatment requirements and human needs of today's patients, as well as the readiness requirements for warfare in the many places where we will be called upon to support operating forces. Our competition, which we share with our line colleagues, is those forces which are inimical to America's interests, values, and continued survival.

Navy medicine today is complicated medicine, stretched to meet needs of fleet and shore, Marine forces, aviation, submarines, growing dependent and retired communities, research and development, environmental health, and many others. At the same time, we must be prepared for contingencies and the future, to ensure that we meet these needs better than we are meeting them today.

Claims on our personnel assets include the fleet hospital and hospital ship programs to ensure support of combat forces. USNS *Mercy* and USNS *Comfort*, each with a 1,000-bed capacity, require us to be ready for sea, for contingencies, and for readiness training. RDMF, MMART teams,



and other readiness requirements are similarly demands upon medical assets pressed by today's austere health care personnel environment. There is no question, however, that we must be ready to go, trained, and equipped, whenever needed.

If the readiness of the Navy depends upon the effectiveness of Navy medicine, the converse is equally true. Our mission is to support the line, and that is where our resources come from. When we talk about resources these days, we are also talking about competitiveness in the sense that there are never enough assets to go around. Resources go to those who demonstrate not only need, but the contribution to readiness and capability to the overall force goals.

We owe it to the Navy and to Navy medicine to ensure that line commanders and resource managers are well

informed about the full range, impact, and importance of our contribution to the overall readiness of a capable fleet and Fleet Marine Force. This is not always evident in full measure to busy line commanders who have wide-ranging responsibilities and their own very full plate of challenges. We must not assume understanding; we must work diligently to ensure it. We have not done as well as we could in keeping our line commanders informed and involved, something that everyone in command in Navy medicine has a role and a responsibility to do.

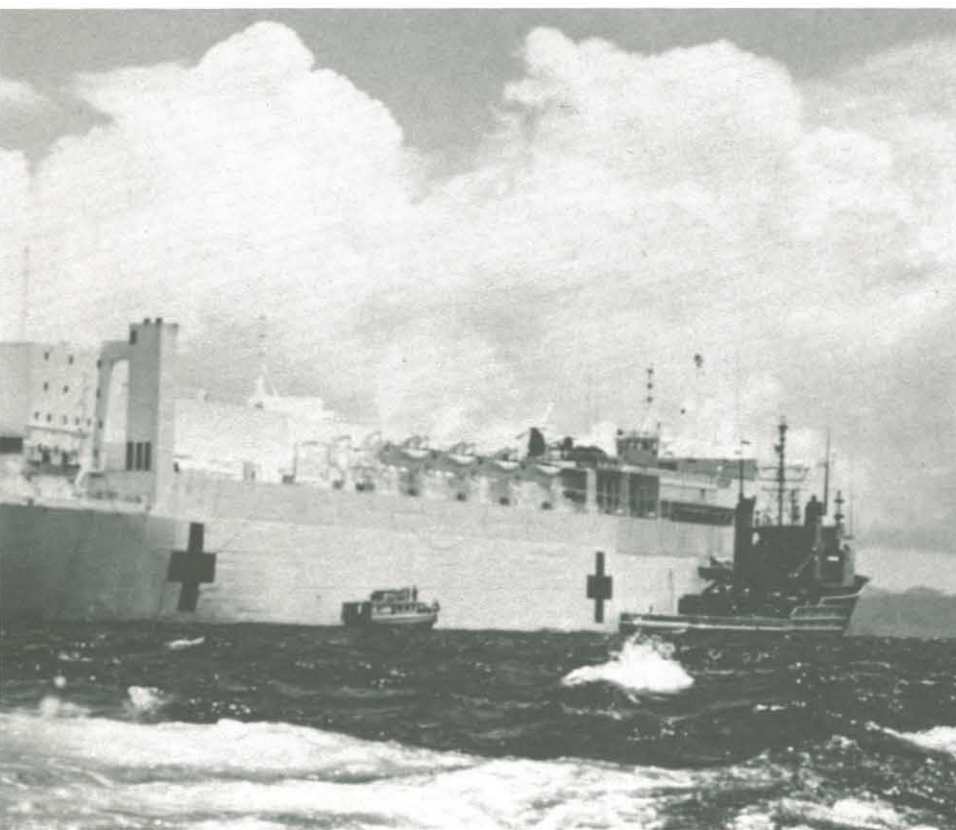
Medicine and the Line

Medicine is not as well understood by our colleagues in the line Navy as it could be. That is something we are responsible for bringing to them, and we must do a better job of it. The line commander, from ships and aircraft

squadrons on up to Fleet Commanders in Chief, are extremely busy people whose operational responsibilities have never been greater. While deeply interested in the health of their people and their dependents, they have little time to examine or understand the problems and challenges which we in Navy medicine face as part of our function in support of overall readiness.

I can assure you that only a small minority of line officers know that the Navy/Marine Corps medical organization has 30 percent fewer physicians and nurses per capita than the other services. They are not conversant with our shortages in ancillary and support people or with some of the facility problems and financial needs which affect the Medical Department. It is not that there is a lack of caring on their part; rather it is a lack of effective communication on our part. We owe it to our colleagues to keep them better informed about issues which so vitally affect the readiness of the forces which they are charged to command, and which also affect the retention of good people for full careers.

I have long urged and I continue to urge that hospital and clinic commanders establish close and continuing dialogues with their line counterparts. Bring that operational commander to your hospital or clinic and let him see for himself the facilities and people who keep his sailors and marines well and care for their families. A walk-through tour of facilities, with a running commentary of facts can be done in an hour or so in most places, and provides an unprecedented capsule view of the facility and its capabilities. We owe it to those who operate our forces to understand more



USNS *Mercy*



PH1 F. Barbante

U.S. Navy Medicine

than that we take sick sailors in the front door and send well sailors out the back door. At the same time, we should take every opportunity to work with line commanders and participate in their activities whenever possible. This must be a proactive, conscious effort on a continuing basis.

Line commander concerns zero in on several areas which we must be aware and concerned about ourselves. Timely care for active duty people, timely access to care for dependents, thoughtful, caring treatment by hospital personnel for all, and an emphasis on quality care are the concerns which I most often hear from this important community. When personnel shortages affect our ability to deliver any of the above in appropriate quantity, it rightly becomes our responsibility to make those reasons known. We are part of the team, an important part, and must make our "game plan" known to the other members. Misimpressions, rumors, and downright false information tend to fill in the vacuums where adequate and timely information flow does not exist.

Navy medicine is under-resourced! Every group that has ever looked at the issue has concluded that resources are not there to meet the expectations of our beneficiaries. No one has ever been willing to say how much health care will be provided and then pay for it. Now is the time as you will see in the next section.

The Retention Crunch and Medicine's Role

When we begin to talk about circumstances which are going to affect all of us in the future it is no secret that the number of 17- to 21-year-olds fall radically between now and 1996. Birth rates in the 1970's and early 1980's give a clear picture of a substantial shortage in that age group which the Navy and Marine Corps traditionally turns to for new people. That puts our Navy and Marine Corps in direct competi-

tion with civilian industry for a high-quality segment of that shrinking labor pool.

What is our role in solving the main manpower challenge of the future? Key to this issue is the importance of the medical benefit among the compensation factors for the Navy man and marine. In virtually every personnel survey conducted over the past 20 or more years, the medical benefit immediately follows adequate pay as the most valued benefit. Given the trends toward earlier marriage and a larger percentage of Navy men and marines with dependent children, medical care will continue to be high on the list of why people stay on the Navy/Marine Corps team, but only if we are successful. If we are not successful, many of these fine people will leave the service. The challenge and the responsibility are enormous.

Let's look at the competition—civilian industry, with its more flexible wage scale and wide array of fringe benefits. Large health management organizations have become a growing factor in employee benefits in the civilian world, with medical and dental plans and hospitalization coverage high on the list of desirable fringes sought in union contracts. The young person seeking a career can shop around in a market where his services are very much in demand. The white plastic card which is the key to treatment at the employer's HMO is one of the most prized parts of the compensation package. Health management organizations themselves realize what a competitive market exists for their services, and are actively advertising their services in the marketplace. Civilian hospitals are similarly in the competition for health business, with incentives and improved customer services an important part of their offering. Where does that leave Navy medicine?

The 1990's will be the era of the 600-ship Navy, the largest Navy which

America has put to sea since the 1950's to meet our worldwide defense commitments. Today's Navy is already feeling the pinch ashore as more people are detailed to fit out new ships coming into the fleet. As recruiting and retention climates become increasingly challenging, the benefits which the Navy and Marine Corps can offer to young people coming in become more important and direct as factors in force readiness.

There is a special factor we are aware of which makes that recruiting and retention task even more challenging than it is in the civilian environment or our sister services. Few civilian organizations ask their employees to leave home repeatedly for 6 or more months for a deployment to the Mediterranean, the Western Pacific, or the Indian Ocean. Virtually none expect their employees to work 16 hours a day for weeks and sometimes months out of sight of land in remote picket stations in the North Arabian Sea, or to operate in the hazardous and unpredictable environments found on carrier flight decks, hot engine rooms and sea-to-land amphibious operations. We ask our people for extra sacrifice and extra measures of both devotion and professionalism. We must give them and their families the best medicine we can in recognition of that professional achievement and sacrifice.

There are other considerations as well. The sailor and marine thousands of miles from home must not have to concern himself about the timely and complete availability of quality medical care for his family in the United States. If we are to meet the historic commitment that the Navy takes care of its own, we must provide a high level of accessible and caring services for family members in addition to maintaining medical and dental health for the operating forces.

To look at it another way, there are rewards for doing this well, and penal-

The sailor and marine must not have to concern himself about quality medical care for his family in the United States.

Few civilian organizations ask their employees to leave home for 6 or more months for a deployment to the Mediterranean, the Western Pacific, or the Indian Ocean.

PH3 Thurston



ties for doing it less than well. The best people will not remain with an organization during the 20 or 30 most productive years of their lives if that organization cannot meet their legitimate needs and those of their families. Few needs are more pressing than the medical ones. When we are needed, we are very much needed, and expected to be promptly and effectively supportive. The people we need to attract and keep are the ones who know the competition, who are the brightest, the best, the most productive, and the most innovative. We are competing successfully and doing a good job only if we are contributing actively to keeping people of this high caliber in the Navy and Marine Corps.

When did retention become part of the practice of Navy medicine? The same day the Medical Department became part of the Navy. This responsibility is not a new one, nor is it unique to Navy medicine. Everyone in a position of responsibility shares this task, and we perhaps more than some others by the importance of our role. There will be more of a spotlight on that in the years ahead as the Navy and Marine Corps continue the struggle to maintain and increase readiness in a 600-ship environment. Each of us must do our personal, concerted best in this part of our mission.

Health Care Administration in the 1990's

Trends over the past several years have told us much about what the 1990's will be like when it comes to the administration of health care. The competitive funding and personnel situation tells me that we will achieve most of our improvements in health care through contracting, and the

innovative use of other than uniformed personnel to meet many of our provider and support staff needs.

We are now examining contracting proposals which can improve our ability and flexibility to take care of the wide range of beneficiaries in our system. CHAMPUS will undergo some dramatic and wide-ranging changes, as it must in order to contain costs and make the most efficient use of limited assets. Joint health benefits programs, cooperative arrangements with the Veterans Administration, the DOD-oriented approach to the construction, and operation of health care facilities around the country—all are factors which will make health care different in the decade ahead.

Our beneficiary population is a growing one, as larger numbers of

dependents and retired personnel become part of the system. We have a strong moral obligation to the retired community to support them to the best of our ability. The argument of space-availability provisions in the law is one thing, but that is not what recruiters told our retired colleagues when they entered the Navy in that different era when treatment of retirees at military facilities was not a problem. Times have changed, but our obligation to these people who have served their country faithfully in peace and in war, clearly remains.

Attracting the Brightest and the Best

When I think about the future, one of the first things which comes to mind is the future of the professional



practice seeking out qualified people to staff the Medical Department of the future, something we clearly must do well if we are to prosper. Those outside the Medical Department sometimes think of physicians as interchangeable, i.e., "a doc is a doc," with lack of comprehension that our specialized needs embrace the broadest range of medical disciplines, none of which is "interchangeable" with the other in the strict sense. We must successfully persuade our counterparts throughout the Navy that this is a qualitative as well as a quantitative problem, and that were we to have tomorrow the numbers of physicians we needed, but that the mix were not right, we would be no closer to the solution of our essential problems.

A strong, viable, GME program constitutes the "seed corn" investment of the Medical Department of the year 2000 and beyond, and certainly the key to our professional capability in the 1990's. In order that this work, there must be a mix of patients which will enable the training of our trainees in the full range of their specialties. Disengagement of some dependent and retired cases because of workload may solve some immediate problems for us, but creates problems for our patients and for our GME programs as well. We must do better in this regard and we will!

Attracting the brightest and the best to the practice of medicine in the Navy relies upon the training and the opportunities we can offer these superb peo-

ple. There must be an environment of quality. This is a continuing challenge for all of us.

Patient Expectation and Perception in Medical Practice

The 1970's and 1980's have been years of enormous medical advances. In this decade and the years immediately preceding, fatal and crippling diseases have been conquered, new drugs brought on line, and such procedures as coronary bypass surgery have become so common that almost everyone knows someone who has had one. This creates high levels of expectation among our patients that virtually everything is possible to the miracle-worker of medicine. If the great disease can be defeated, the patient thinks, why cannot my seemingly small problem be decisively and promptly solved? The tolerance for mortality and morbidity as an expected part of medical practice has fallen to near-zero, and the number of legal and malpractice actions has risen with the expectation that if something goes wrong, the physician must be at fault and therefore liable.

There is another aspect to this which is perhaps less dramatic, but equally important to all of us in Navy medicine. That is the perception and the reality of quality care. We in medicine make distinctions between "access to care," all those wickets and procedures and sometimes obstacles which our patients have to go through prior to arriving at the health care provider who actually administers treatment, and "quality of care." Our patients do not perceive this equation the same way.

Despite the brilliance of the provider, the capability of the support staff, excellence in prompt, accurate

health care provider force, and how we must grow this force through Graduate Medical Education (GME). Here again, competitiveness enters the picture as we go to the field of civilian

HM3 Michael W. Spencer



Our beneficiary population is a growing one, as larger numbers of dependents and retired personnel become part of the system.

diagnosis and treatment, and successful recovery, the patient looks upon the entire process, including access to care in determining what constitutes quality care. If the patient has had to wait for hours, has been given little information, treated offhandedly inconsiderately by hospital staff, or perceives that the hospital staff is not interested in their problem, we have an access to care issue which is resolved by the patient as "low quality care." Perceptions are real, especially to the perceiver. Very few of our patients are qualified to judge the quality of care they receive, but everyone of them is a certified expert in how they have been treated as a human being.

Civilian medicine has seized upon recognition of this important series of facts. They have the best motivation in their world to do so—money. If patients are not treated with kindness and caring at Hospital "A," and they go to Hospital "B," the word gets around very quickly, and Hospital "A" is very soon in deep financial trouble in this highly competitive health care environment. Customer relations, patient satisfaction, patient contact—call it what you will, but it is *not* an optional, not a frill, not an unimportant part of the health care process in the 1980's and 1990's.

Those who would say that we serve a

"captive audience" which must come to us for medical care display shocking insensitivity to reality. In addition to trying to justify a less-than-optimal concern for patients, such persons do not understand that unsatisfied Navy and Marine Corps patients and their families vote with their feet when the time for reenlistment and career service come up. The price of uncaring care is the loss of trained, experienced sailors and marines. If we are to really serve the Navy and Marine Corps, we must serve the deepest needs of both the services themselves and of the individuals who come to us for treatment. If we fail in this, we fail in a very important part of our mission.

The Age of Specialization and Integration

In this rapidly changing Navy of ours, the specialization of the society has found its parallel in full measure. We in medicine understand specialization better than most because of our long association with it as part of our professional lives. There is no aspect of the naval endeavor which does not have medicine as a part of it, and there is no part of any major medical organization which does not have its reliance on the specialized expertise of people like lawyers, civil engineers, supply officers, and others.

As people become more specialized, sometimes their focus narrows to embrace only those matters which primarily interest them. We cannot afford this narrow view, but rather must look at our naval world with bifocals. We must continue to maintain excellence in Navy medicine, improve our efficiency, attract good people, and keep up with the fast-moving developments in medical science. At the same time, we must keep a continuing weather-eye on the overall goals and missions of the Navy as a whole. Only in responsiveness to mission needs do we fulfill our major purposes and have our major effectiveness.

This is where integration comes in. If we are to become better at meeting the overall needs of the Navy, we must improve our contact and communication with its major force, and be attuned and responsive to the changing situations which move a dynamic organization. The challenges of the Navy are our problems, the difficulties of the line Navy are our difficulties. If we are to share in the successes, we must share in the broadly-based efforts which makes those successes possible, and participate fully in the solution of the challenges and problems which confront the Navy as a whole. □

HM3 Michael W. Spencer



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Dental Health

Planning for Delivery in the 1990's

RADM Robert W. Koch, DC, USN

The Honorable James H. Webb, Jr., our new Secretary of the Navy, recently spoke to a group of Department of Defense, Navy, and civilian personnel about his recently acquired position. He stated that we have "a past to protect and a future to defend." I can't think of any statement more fitting and applicable to the Navy Dental Corps, especially as it pertains to the delivery of dental care.

Our Dental Corps, authorized by Congress in 1912, has provided the Navy's operating forces with a high quality of dental health in peacetime and war. Thousands of Dental Corps officers have contributed to our rich heritage. Without question, we will protect the proud past that we have inherited. But what of our future? How can we best defend the future of Navy dentistry and ensure appropriate resources for the delivery of dental services through the 1990's and into the 21st century?

Before my assignment as the Deputy Commander for Dental Care Operations, MEDCOM-06, I was privileged to serve as the Director of Resources, OPNAV 931, in the Office of the Director of Naval Medicine. It was obvious that fiscal and manpower resources for the entire Navy were scarce and that very limited growth was projected over the next decade. The 600-ship Navy was becoming a reality, but the resources needed to support those 600 ships had not been identified. Above all, it became clear that manning of our operational forces would take precedence over other resource requirements, including those for the provision of medical and dental care. This does not mean that the Medical Department must do without adequate fiscal and manpower support forever. It does mean that we must voice and defend our resource needs in the appropriate planning, programming, and budgeting arena where competition is tough and unforgiving of unsupportable requests. To compete, our quest for resources must reflect real and supportable need.

First, let us look at the prospective demand for dental

care in the United States. The impact of dental problems on this country's productivity exceed 100 million working hours a year according to one major insurance company. A recent Commerce Department report projects total health care spending in this country to be \$511.9 billion in 1987. Dentists' services will account for 6.5 percent of those 1987 dollars or \$33 billion. By 1990, as a country, Americans will spend over \$42 billion on dental care. All of these figures describe a scenario where only 50 percent of the United States population receive dental treatment.

Active duty patients have patterns of dental disease similar to their civilian counterparts but initially are provided a level of care simply to meet minimal readiness standards. More and new forms of treatment are generally required before our active duty personnel can be considered dentally healthy in accordance with changing dental standards of care. These standards for dental health are not synonymous with dental readiness. An operational unit may be classified as 80 percent operationally ready according to the dental readiness standard, but at the same time, still require hundreds of man-hours of dental treatment to eradicate disease. "Dental readiness" status simply indicates a relative degree of risk for having a dental health emergency during deployment.

The Assistant Secretary of Defense for Health Affairs, Dr. William E. Mayer, has stated that the Federal Services will provide health care second to none in quality. Active duty personnel are entitled by law to this dental care while all other beneficiaries are entitled to dental care on a space-available basis. Today's standards demand that the Navy Dental Corps provide active duty personnel with that level of dental care necessary to assure total dental health and function even beyond their 20 or 30 years of active service. To plan and provide otherwise would support endorsement of incomplete and substandard dental care without the well-being of each patient in mind. The Navy does not limit medical care only to that treatment necessary to keep active duty members alive for a 20- or 30-year career.

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The factors influencing our future capabilities to provide quality dental care are numerous and complex in nature. I will identify some of the current factors and discuss their impact.

Population Served and Available Resources

As the 600-ship Navy reaches its peak, additional manpower will certainly be identified to man our expanded force. Unfortunately, projected growth for dental manpower to support fully the 600-ship Navy doesn't exist. This problem becomes more serious when a recent Navy-wide study of dental treatment needs is considered. According to the study, which is based upon dental treatment requirements tabulated from actual treatment plans, nearly 958 additional dental officer billets are needed now, just to provide our active duty population with their dental needs. Without additional dental capability, active duty personnel will experience reduced levels of dental care. Unlike the Medical Corps, which has sufficient assets to support a healthy recruit and active duty population, the Dental Corps faces recruit and career populations having high incidences of disease. Current assets will never allow us to play catchup to treat or control all dental diseases in the active duty population.

Changing Standards of Care

As science and research advance, the standards of care for dentistry are upgraded. For example, tooth loss due to periodontal or gum disease may have been acceptable 10 years ago, but not today. Sixty-five percent of all litigation against general dentists in private practice is caused by practitioners failing to diagnose, treat, or refer patients having gum disease. Additionally, current standards of care may require supportive orthodontic treatment from orthodontists and various types of dental implants from other specialty-trained dentists. These forms of treatment represent new requirements for unique resources previously considered experimental. They are now required in graduate training programs and accepted as important adjunctive modalities of care necessary to maintain optimal oral health. Providing this level of care to our active duty beneficiaries does not come without cost. Just as the Navy and Marine Corps plan and expect to procure the best and most sophisticated weapon systems for defense, we must plan for and expect to receive the best trained people and materiel support to ensure healthy men and women to operate those weapon systems.

Infection Control

Recent guidelines from the Centers for Disease Control (CDC), in Atlanta, have caused a major revision of the Navy's directive for dental infection control. While conversion of dental operating offices to sterile hospital operating rooms is neither possible nor necessary because of the bacterial population normally inhabiting most mouths, it is imperative that we protect all patients and providers

from cross-contamination and infection from each other, particularly from hepatitis B, AIDS, and herpes viruses. The cost of additional resource requirements associated with this infection control program approaches \$5 million in FY87 alone. This cost is over and above our regular operating budget. The impact of this new expense will significantly increase the cost of the average dental procedure while the additional time required to execute the new infection control standard will cause a reduction in the average number of dental procedures provided per practitioner.

Quality Assurance Program

This formal program for naval dentistry has no true counterpart in the civilian community. Individual credentialing files (ICFs) rarely exist from state to state except in hospital dental services. Private outpatient clinics are unfamiliar with formal quality assurance programs. Private practices need not contend with quality assurance oversight of clinical privileges, internal review proceedings, or volumes of patient record documentation. This new requirement for naval dentistry reduces productivity, increases cost, and requires more manpower support. A strong quality assurance program is essential, especially as we proceed to offer the more sophisticated dental care anticipated for the 1990's. The civilian world will undoubtedly follow suit, and the cost of private care will rise accordingly.

Dependent Space-Available Care and Insurance Program

When Congress expanded the provision of space-available dental care for dependents to all military dental treatment facilities, authorities predicted that the total increase in dependent care would be at the expense of the retired community. Workload statistics have not shown this to be completely accurate. From 1984 to 1986 Navy dentists did provide 2.6 percent less care to the retired community, but the active forces received 2.8 percent less care too. While this 2.8 percent represents a tiny drop in the percentage of care provided to active duty beneficiaries when compared to our sister services, this trend must be closely monitored to assure maximum effort is directed toward active duty members. Once a dependent is accepted for a specific type of space-available dental treatment in a Navy clinic, that treatment must be completed to at least an appropriate stopping point to meet acceptable standards and to preclude any perception of abandonment. This is ethically appropriate, but can and does contribute to a necessary increase in man-hours provided to dependent dental care.

The Department of Defense's new Active Duty Dependent Dental Insurance Program is a positive step in the right direction to provide our dependents with access to dental care. While the program is limited in scope, the government does pay for 60 percent of the total cost of the program. Navy dentists must continue to provide space-

available care for those dependents not enrolled in the program. Retirees might see some gain in access to treatment as dependents seek dental care from civilian sources. This insurance program does not free up additional man-hours of dental capability justly needed to care for active duty members. In fact, the time and manpower needed to provide and coordinate that space-available dependent specialty care not covered by the insurance program could negatively affect our overall capability. We are sensitive to the needs of our dependents and retired beneficiaries, but it is impossible to provide anything but occasional treatment. The Navy simply does not have adequate resources to provide the dental treatment needs of our active duty members alone, much less other beneficiaries.

Planning, Programming, Budgeting, and Managing

Future capability to provide dental services to our beneficiaries depends upon our ability to compete for resources in the planning, programming, and budgeting arena. Dental Corps personnel at all echelons must become active participants in this process. Commanding officers must provide accurate assessments of resource requirements that are based upon sound, supportable planning for multiple years. Continual and close liaison with our beneficiaries is necessary to determine changes in requirements at the earliest possible date. Endorsements by line commanders add valuable credibility to long-range plans and resource requests forwarded to geographic medical commanders.

It is essential that unmet dental workload information be identified. Commanding officers and branch heads who do not document materiel shortfalls and insufficient staffing will never receive proper support. A "can-do" spirit is always encouraged, but can be detrimental to future mission accomplishment if the resource shortfalls continue to go unattended.

In 1985 the Secretary of the Navy assembled a steering committee to address problems in the organizational structure of Navy dentistry and the delivery of dental care to active duty members. A specific change action specified by SECNAV mandated the establishment of the Directorate for Dental Care Operations, MEDCOM-06, and a full-time staff office for the Chief of the Navy Dental Corps as OPNAV 093D. One important purpose was to establish a more efficient and accountable dental delivery system that parallels the medical delivery system. The medical and dental delivery systems merge at the NAVMEDCOM level under the Commander, Naval Medical Command.

MEDCOM-06 is the program manager for the delivery of dental care and coordinates all requests for dental resources received from dental treatment facilities and forwarded through each appropriate geographic command. It is imperative that all requests for dental resources maintain their "dental" identity as they pass through each geographic command. Assistant Chiefs of Staff (ACOS) for Dentistry must coordinate planning, programming,

and budgeting with Assistant Chiefs of Staff for Resources. MEDCOM-06, as program manager for dental care, requires this identification of dental resources to properly promote and defend future requirements.

A few comments pertaining to the obligation of dental operating funds are important. MEDCOM-06 plays an essential role in evaluating requests for additional resources. Following NAVMEDCOM's receipt of each year's budgetary allowance, MEDCOM-01 confers with MEDCOM-06 to determine the most appropriate distribution of dollars. This distribution is forwarded to the geographic medical command where the Assistant Chief of Staff for Dentistry is tasked to track closely the timely distribution of dollars to each dental command. The ACOS's for Dentistry are expected to monitor this distribution with the cooperation of each ACOS for Resources. Additionally, they must ensure that dental commands receive and obligate their funds as quickly as possible.

MEDCOM-01 and NAVCOMPT closely track obligation rates for the dental community. If a low obligation rate occurs during the first two quarters of each fiscal year, MEDCOM-06 has a very difficult time justifying a need for additional funds during the annual midyear review process. Poor obligation rates suggest that we may not spend all our programmed dollars by year's end. Dental commands have traditionally obligated most of their dollars by the end of the fiscal year, but historical records reveal that most dental funds do not become officially obligated until the last quarter of the fiscal year. This flashes a signal to Navy higher authority that the Dental Corps is suspect of "year-end dumping."

There are many possible causes for this so-called "negative" profile. Geographic commanders and dental commanding officers can act to prevent and change this picture. The geographic commander must release dental funds to individual dental commands as early as possible. The dental commands must be prepared to execute their budgets rapidly and strive for early obligations. Because dental commands no longer have purchase authority, close monitoring of the supply network within and outside each geographic command is necessary to move related paperwork. MEDCOM-06 will be investigating every conceivable way to ensure the flow of resources to dental commands, hasten the obligation of funds, and improve the flow of essential information from the dental commands back through the geographic command to MEDCOM-06.

In closing, the Secretary of the Navy, the Surgeon General, and the Commander, Naval Medical Command, have provided us with an opportunity to manage efficiently the dental care delivery system. It is up to us to do it right, by assuming a proactive, rather than reactive posture. We cannot sit back and watch from a distance to see what may happen. This philosophy yields nothing. We must use the Navy's planning, programming, and budget system to make the right things happen now and in the 1990's. □

The Power of Perception and the Future of Navy Medicine

CAPT J.P. Mathews, USN

The last patient you just saw . . . yes, the last one. What perceptions does he or she have of you and of Navy medicine based on that experience? Is the answer really important? Will it have a long-term effect on the Navy? In his article in this issue, Admiral Cassells makes some telling points about perception and its effect on the critically important relationship between patient and Navy health care provider in the years just before us. There is an important relationship between the fact or absence of retention and the powerful influence of perception which all of us should be aware of.

The Materials of Which Perceptions Are Made

It is 2 o'clock in the afternoon in one of our outpatient clinics. A young Navy wife, her husband deployed to the Med for the past 5 months, has brought her infant to the crowded clinic with a raw sore throat. The washing machine broke down the night before. She left the house at 0700 to be there for sick call. Finding a parking space near the clinic was impossible. She finally parked illegally five blocks away. She has just gotten the car out of the shop after a series of costly repairs which have left her budget depleted. The child is restive, cranky, feverish. She has been up half the night with him. The corpsman gave her a hard time when she signed in for taking so long to find her ID card, which she had to do while holding the wriggling child on one arm. He had trouble finding her record, and could not find the results of the test she had had 3 weeks before. She joins a large crowd of active duty dependent and retired people in the small, ill-equipped waiting room. She has been waiting there ever since. The pediatrician was away all morning at another command. No one has come to tell her that, or when she will be seen. The woman is hungry. She did not want to go out for lunch and possibly miss her turn. Some of the medical staff do not appear to be that busy; corpsmen stand around on break drinking sodas and chatting. When she is finally seen, her young son gets a thorough examination by an experienced board-certified pediatric specialist, who prescribes medicine for the boy and tells her to come back in 48 hours if the condition persists. All of that takes 12 minutes. She waits another 45 minutes to get her prescription filled, then carries the child five blocks to the car. The commissary and

exchange have closed by now, so she must come back tomorrow from several miles away. When she gets to the car, it has a ticket for illegal parking. It has not been a good day. Neither has it been the first time that she had a combination of a long wait, indifferent personal treatment, and a lack of positive human contact with the Navy medical staff.

In a couple of days, the boy will be like brand new. Does that mean this lady perceives that she has received quality medical care? Doubtful at best, likely not. Is she under great stress? Certainly she is. Does she like life as a Navy wife? You bet she doesn't. Her husband is a third-class petty officer, an engineering rating finishing up his first enlistment in a few months. He enjoys his work, is an excellent performer, likes the Navy, wants to stay. Will he reenlist? Doubtful at best, likely not. His wife has had enough, and he will make an unfortunate but necessary choice. Another good sailor is lost to the Navy. The culprit: *Perception*, brought on by a number of things which could easily have been changed, improved, mitigated, even in a medical organization short of providers.

The Perception and the Fact

Was her care good? From a clinical standpoint it was excellent. The experienced physician quickly diagnosed the problem and prescribed exactly the right medication. He could, perhaps, have spent more time explaining the nature of the illness to the concerned mother, or been a little less brusque after a busy day. Sadly for us, this lady, like most patients, cannot adequately appraise the clinical quality of her care. As Admiral Cassells has said in his article, she is, however, a certified expert in how she was treated as a human being—something which she judged as poor. Her overall *perception* of the experience was not good; therefore Navy medicine got bad marks when some basic human relations/patient contact effort could have made all the difference. The long hours of waiting, which probably could not have been changed, would have been made much more bearable had someone made announcements in the waiting room about delays, or if someone had taken the time to come through the waiting room to ask her how she was doing.

Are we guilty? Did we cause the outstanding young sailor to get out of the Navy? While the answer may not be a clearcut yes, and while it is obviously a combination of the many stressful, difficult aspects of Navy life which

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caused his wife to discourage him from shipping over, we certainly did not do anything to contribute to his retention. We were, in fact, more part of the problem than we were of a solution, the high quality of the clinical care given to his wife and child notwithstanding. Could we have done better, perhaps becoming a positive influence that offset some of the unavoidable stresses of Navy life, making this woman feel that the people of Navy medicine really cared about her? You bet we could. And, it would not have taken that much. It would have added nothing to our budget costs, taken very little time, made all concerned feel better, and improved the chances of keeping another good family in the Navy. Is this an isolated case? You know the answer. Is it important? You know the answer to that, too.

In the decade ahead, it will be even more important. The figures tell us that there will be an average of 3 million fewer males of eligible age in the American workforce between now and 1996. That tells a story which needs no explanation about the criticality of personnel retention as a top-level priority for the Navy during that time. Contributing to retention is not optional for us. We must be part of the solution. There is no acceptable alternative.

Some people might say that we are not staffed and cannot afford the time to be walking around waiting rooms checking on patients. If we intend to be understood for what we really are, a highly competent, caring, supportive medical organization, and if we intend to take our share of responsibility for fulfilling the Navy's overall goals, we cannot afford *not* to. A patient contact representative program is a good start, but it requires the patient to seek out the contact, usually to question or complain. That is simply not enough—we must be conscious of patient needs at *every* patient contact point from the front door coming in to the side door going out. A master chief corpsman reminded me the other day that perhaps we should even begin in the parking lot, either by expanding their size or making more close-in spaces available for patient use.

Whether you are physician, dentist, nurse, MSC officer, corpsman, or civilian staff member, those questions at the beginning of this article are meant for you, and for all of us. The answers are important. So is our understanding and acceptance of the role which perception plays in the complex interaction between patient and provider. We are an organization of individuals, any one of whom has enormous potential for good or harm based on our ability to be sensitive to and act properly on the increasingly important phenomenon of patient perception. If we fail to recognize this growing impact, the results will hurt both Navy medicine and the Navy as an organization as we enter the turbulent era of the 1990's.

The Complex Nature of Perception

Psychologists investigating stress have learned that high stress levels can be developed in individuals by the perception of threat in an event or situation, whether the situation is actually threatening or not. We believe certain public

figures are charismatic, honest, conniving, or manipulative based on our perception of them, whether that perception is accurate or not. People we work with or live near may appear withdrawn, unfriendly, sullen. In fact, they may only be shy or introverted. Our perception may not be accurate, but to us it is real and affects our actions, opinions, and relationships with others.

The operative aspect of perception is not what is necessarily real, but what people, including ourselves, think is real, feel is real, believe is real, perceive is real. It is as powerful in formulating people's opinions and actions as any reality. For practical purposes, perceptions *are* real, whether they are real or not. It is this fact that we have to deal with effectively in the practice of Navy medicine and other aspects of health care administration within the Navy and Marine Corps.

Most perceptions are built upon information, experience, or emotion, or a combination of all three. For example, most of us have some well-formed perceptions of such things as 1988 presidential candidates, the Iran-Contra affair, and Japanese trade policies based on information we receive through the media. We have some strongly-held perceptions of such things as the Postal Service, the IRS, bureaucracy, or our local garage built upon experience. Such things as rude bus drivers, unhelpful store clerks, or religious or ethnic bigotry give us a strong emotional basis for perceptions. Sometimes, these are the result of a mixture of factors, but once formed they are there until changed or replaced by another perception. If reinforced by multiple experiences or additional information, the perception is strengthened. We sometimes even look for new facts to reinforce perceptions we already hold. Sometimes, changing established perceptions is a formidable task.

By now, you have undoubtedly taken aboard the message. What people think of Navy medicine based upon their experiences, information, and emotions constitute a very strong body either of support or criticism for this organization of ours.

How *do* people perceive of us in Navy medicine? It depends on who you talk to. Perceptions range from lavish praise from people who think we are the greatest health care organization in the world, to those who consider us the purveyors of low-quality medical treatment, a full spectrum of perception from the best to the worst. Feelings always have some grounding in reality, and when it comes to the critical comments, we clearly have to change the way we do some things if we are going to change the perceptions for the better. How many people are unhappy about Navy medicine? No one is sure for certain, but even a few are too many if their complaints are valid, and there is ample evidence that there are more than a few. There is food for thought in the fact that each one of the perceptions, good or bad, was the result of the actions of one or more of us in Navy medicine.

How can this wide range of perceptions exist? Clearly, it

is because some of us are better than others in dealings with other human beings. Three thousand years ago, in the time of Asclepias, Greek physicians first set forth the premise that the physician had to treat the soul of the patient as well as the body. They clearly were the authors of "bedside manner" and in their own way, masters of human relations. In modern medicine, and especially in present-day Navy medicine, the quality of the product, the diagnosis, and treatment itself is not the problem. We have one of the demonstrably highest standards of health care anywhere in the world, monitored by a program of quality assurance which makes it even more certain that our patients are getting the best clinical treatment. So, quality medicine is not the problem, at least in the vast majority of cases. Where *does* the problem lie? You guessed it. The problem is the actions we take, or do not take, which contribute to patient *perception*.

What is civilian medicine doing to improve relations with their patients during these competitive times for them? They have elaborate, wide-ranging programs to carefully and fully relate to their patients as human beings. Each member of the hospital staff, including the maintenance force, in one leading metropolitan Washington hospital receives patient relations training. Incentives and awards are given to the most patient-friendly, patient-concerned staff members. Keeping the patient/customer happy is top-priority, big business in civilian health care, where losing patients to another institution can make the difference in the financial health of the organization. Given the stakes in terms of Navy readiness of retaining good people in the service, our reasons are much more compelling, and even critical from a mission standpoint. The old tradition that the Navy and Marine Corps take care of their own also poses the silent demand that we do so in a way that bespeaks adherence to the spirit of that great tradition, and the human values which underly it.

Changing Perceptions in a Navy Health Care Environment

Given that the need is there to change the perceptions of our beneficiaries about the quality of Navy medicine as a principal benefit of their service to their country, how do we go about it?

Change begins with the realization of need. One of the realizations is that human beings do not necessarily have built-in human relations skills necessary to be successful in that aspect of health care, and that we have the obligation to equip our people with this form of knowledge just as surely as we need to ensure their training in clinical competencies.

One of the perceptions we have to change is one which infects some of our own number. There is an attitude held by some which maintains that for our patients we are the only show in town and since they necessarily must come to us we need not go through all the niceties or amenities of courting them. The shortsightedness of this view from a

Navywide perspective is very evident, not to mention its unacceptable arrogance. The unsatisfied sailor or marine votes with his feet at the end of his enlistment. The argument that we have no time for this similarly fails. We have made time for quality assurance, for peer review, for in-service training, and for many other things which are necessary parts of effective operation. So, too, is effective patient relations, and so, too, must we invest the time and, more importantly, the increased amount of caring which it takes to do it with excellence. We cannot afford *not* to take the time, the effort and any other investment which it takes to do it right. The alternative costs in the loss of good people are far too high.

How do we do it? It will take a multifaceted program which involves, as a minimum, the following factors:

- Instruction at OIS courses for physicians, nurses, and other direct procurement officers.
- Instruction at the Hospital Corps schools for incoming corpsmen.
- In-service training programs at each medical facility for military and civilian staff.
- Continuing command attention to monitoring patient satisfaction at each of our facilities.
- Frequently reinforced recognition by each person in Navy medicine that our mission is not so much to administer treatment as it is to treat people.
- Programs to publicly recognize health care providers and other staffers who excel at providing patient satisfaction.
- An affirmative approach that tells our patients that we care about them. There's no question that we do, it's just a matter of having them understand that and *perceive* it based on our actions.

This article is not an indictment of Navy medicine for callous insensitivity. Thousands of people at all levels are exemplary in dealing effectively with patients. There are superb examples every day of patients who think we are the greatest. There are just not enough of them, and too many of the other kind. Navy medicine is overwhelmingly comprised of people who do not accept "good enough" as their standard, who are always looking for the better way, the more effective way. This is just another area in which we must do so.

Finally, changing perceptions is not manipulative. We should not be creating impressions which are not honest reflections of what we are doing or thinking. Those among us who do not care about the Navy or Navy people should be doing something else for a living. Those of us who do care need to show it more clearly.

That there is an urgent need to change the perceptions of our beneficiary population about Navy medicine is hardly arguable. The need to do so as a direct contribution to retention, and thereby force readiness, is an imperative. Underlying all of this there is yet another reason, one which complements all and has an imperative of its own. It is clearly the *right* thing to do. □

Managing the Patient Experience

LCDR H.C. Coffey, MSC, USN

In order to avoid law suits, health care institutions are paying more and more attention to risk management issues. They are learning to manage the patient experience, and finding solutions to their consumers' needs. It is no longer enough just to treat the patient by running them through modern health care systems that were designed for resource and staff efficiency. They must concentrate part of their energies on ensuring the patient has a well coordinated and worthwhile visit.

Below are a few rules of patient experience management that are an essential part of every effective patient management system:

- Show concern and compassion to your staff so that they will know how to show concern and compassion to your patients.
- Be watchful for the patient who needs special assistance.
- Act toward every patient and visitor as though they were guests in your home.
- Treat the whole person, not just the illness.
- Constantly seek new ideas from patients and staff on how to improve services.
- Listen hard and act fast when warning signs tell you your system is failing.
- Keep pace with the frontrunners in consumer relations: read, read, read!

A true story will illustrate the state of affairs in one of our health care treatment facilities.

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* * *

Grasped by a mixed sense of uncertainty and determination, Marie, an elderly widow, made her way to the Primary Care Clinic. She allowed an extra hour to get there because she knew she'd have to go to the Medical Records Department before going for her same day appointment, which she made earlier in the morning. She knew her overcoat would be burdensome to carry over her arm, what with the medical record and the walker she had to use, so she kept it on. She had gotten the walker for support 3 years before her husband, Joseph, died. Her hip still hurt, but for a lady of 86, she was maintaining her independence quite well.

The clinic was down one flight of stairs and 75 yards along the corridor. Marie knew this trip would take her about 20 minutes depending on the elevator. When Joseph was alive, he would get a wheelchair from the emergency room and escort her to her appointments. He was so considerate. Now she would have to make it on her own.

As Marie began her journey to the clinic, she knew there would be many eyes on her, there always were. She could almost read their thoughts: "Look at that poor old lady. Someone should help her." But no one would. And that was okay; she could manage. The young corpsmen and doctors were much too busy these days. Besides, she had set aside the rest of the afternoon for this visit.

In the clinic, the seats were filled with waiting patients. After checking

in, a seat in the center of the waiting room became vacant. Marie smiled to herself as it was taken by a young lady before she was able to get even half way there. She would wait for another.

Her name was called four times before she realized she was being paged. By the time she struggled to her feet, her name had been called two more times. She tried to get her coat off, but being in more of a hurry than usual, she spilled the contents of her purse onto the floor. The receptionist was very patient as Marie picked up each of the fallen items and replaced them. She left her coat in the chair to save her place. The receptionist pointed to a small office where Marie's vital signs were taken and documented. The corpsman then instructed Marie to return to the waiting area. He watched passively as Marie laboriously got to her feet and grasped her walker. He had repeated his instructions twice, probably thinking she was hard of hearing.

Her seat was taken and her coat was rumpled up and placed over a trash canister. When another seat opened up, she proceeded there a little more slowly now, as she was getting tired. At 1515 she was called in to see the practitioner for her 1400 appointment. As she left the examination room to "catch a urine sample" for the laboratory, she noticed her coat had slipped to the floor. The coat was Joseph's last gift to her the Christmas before he died. But who would know that? It was just an old lady's coat.

Marie took her overcoat, urine cup, and laboratory slip and started down

the corridor. She didn't need to read the directional signs on the wall, she had been there many times before. The trip would take her about 15 minutes. When that was done, she'd go back upstairs to the pharmacy to have her prescription filled and drop off two other refills. By that time it would be 1730 and time for supper.

* * *

Before Marie was within 20 feet of the door at a major fast food restaurant the young worker had the door open and offered to help her to a seat amidst the evening crowd of hungry customers. The young lad, who was about to begin his trash pickup and disposal helped her off with her coat, folded it and laid it gently on the seat beside her. He asked her if he could assist her with her order. This was unusual, as she had always placed her order at the counter.

In a few moments he was back with her supper and her change. He refused the offer of a tip stating it was company's policy never to accept a tip. She had just about finished when the Assistant Manager approached her and asked if everything was satisfactory. She stated that she was delighted with the wonderful treatment she had just received. Marie wondered how these people even noticed her with all the other customers queuing up and occupying most of the tables.

When Marie was ready to leave, the young man was there to help put on her coat and assist her outside. As she looked back through the window, the Assistant Manager was taking an order from a couple with four young children, and the young lad was mopping up a spilled drink in front of the salad bar. □

Below: Fleet Hospital One is a combination of large expandable tents and standardized shipping containers. All tents and containers are connected by two long hallways. The hospital was on 22 acres at Camp Pendleton Marine Corps Base, located 40 miles north of San Diego. Bottom: Two hundred forty-seven patients were admitted to Fleet Hospital One. The hospital had seven wards and the tan-colored tents and shipping containers were air-conditioned.

Photos by Dave Fraker





Operation Safe Haven

Dave Fraker



When the Navy's first field hospital was designed in 1939, it took a battalion of Seabees 60 days to set one up during World War II.

During the last week of April and the first week of May 1987 the Navy tested its newest \$20 million field hospital design on 22 acres at Camp Pendleton, CA.

Scenario

Green forces (bad guys) closed Mexicali Straits in violation of the 1950 Treaty of Escondido and then attacked several Orange forces (good guys). Limited military operations against Green forces were authorized to open the straits and restore order.

The Second Battalion First Marines advanced north along Interstate 5 and faced sporadic resistance from the Green forces.

After several days of fighting, Commander-in-Chief Pacific Fleet ordered the assembling of Fleet Hospital One, a 250-bed combat zone hospital. The purpose was to support fleet and fleet Marine operations.

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The hospital received its first patient at 0800 on 2 May. LCPL Byron Williams had deep gashes in both legs, a ruptured spleen, and shrapnel protruding from his right arm. He was one of 247 Marine volunteer patients from Second Battalion First Marines.

COL Patrica Radle's moulage team made the wounds. The war was make-believe but Fleet Hospital One was real.

Hospital Objectives

The Fleet Hospital Program originated in 1981 to replenish and modernize the Navy's supply of mobile hospitals depleted during the Vietnam War.

"In essence, we had no ground deployable systems to provide medical care to support the Navy/Marines at the rear of the combat zone," says CAPT Ben Bienkowski senior evaluator for the program. Bienkowski was the medical system design officer for the Fleet Hospital Program from 1981 to 1985 and headed a team to evaluate the first and only full scale test of a 250-bed fleet hospital. He brought together 46 active duty and Reserve Navy personnel from all areas of



Left: Marine PVT Tyler Bate receives a face wound from Army moulage team member SGT Paula Scott. Above: Bate's face wound nears completion.



Several patients were transported to the hospital site during day and night operations by Marine Air Group 39.

expertise, i.e., medical, supply, Seabees, dental, etc., to evaluate the hospital during the operation.

"The main objective of the Fleet Hospital Program is to bring medical facilities closer to combat operations," says Bienkowski, a Navy medical care services officer. "Specifically, we designed the hospitals to shorten the return to duty of wounded troops, diminish the need for air support, and provide rapid deployment to support combat operations around the world."

The hospitals are combinations of large expandable tents and standardized shipping containers. Some containers expand and link to the tents to form X-ray units, operating rooms, or the pharmacy.

Fleet hospitals come in three sizes: 250-, 500-, and 1,000-bed units. The 250- and 500-bed units are located behind the combat zone.

"When we went to Congress to ask for money to fund 20 fleet hospitals, they mandated we make as many of the containers as possible standard for every branch of the military," Bienkowski pointed out. "If an Army, Air Force, or Navy surgeon operated in a fleet hospital operating room he would find the same lights, tables, and tools in every single hospital."

Seabees Assemble Hospital

Eight hospitals will be manned by active duty Navy personnel and 12 will be manned by Naval Reserve staffs. Civilian contractors trucked Fleet Hospital One to the site from its storage facility at Naval Air Station Alameda.

Six hundred nineteen people manned Fleet Hospital One. They were a combination of all Seabee construction rates, medical, and personnel

people. The medical staff came from several Navy hospitals in southern California.

Within 96 hours, 60 Seabees from Naval Construction Battalion Five located at Port Hueneme, 45 miles north of Los Angeles, were hard at work. They put in 14- to 18-hour days, clearing 22 acres. Together with the hospital staff, they opened 325 shipping containers, connected the tents and containers, assembled generators, hooked up electricity and plumbing, and put the field galley into operation.

"I think we could have put the hospital together much faster if all materials were grouped together," says Construction Electrician Senior Chief Bwayne Groshong, assistant officer in charge of the Seabee detachment.

We opened a container that was going to become an operating room but had to open 10 others before finding the right equipment to stock it. We suggested that we repack the hospital the way we put it together." This was just one of thousands of recommendations the evaluators received during the complete operation.

The Navy plans to store the packaged hospitals in overseas host countries and some will be stored on Military Sealift Command ships. The host country-stored hospitals could also be used in natural disasters such as earthquakes.

Meanwhile, LCPL Williams had been medevaced from the combat zone by Marine Air Group 39. He was now in casualty receiving. A medical team consisting of a doctor, nurses, and corpsmen determined the extent of Williams' injuries and sent him directly to operating room four.

"We took in 45 patients during the first day of Operation Safe Haven," says CAPT Harold Koenig, Fleet Hospital One commanding officer. Koenig's office was in the north end of the administration tent. Small, foldup chairs, a small wooden and metal field

Operating room and casualty receiving attendants move a patient from the cart to an operating room table.

desk, and table were scattered about. The droning sound of a diesel generator drowned out most normal conversations. In the same tent, administration people kept track of patients and staff.

Two long hallways connected all tents and containers within the tan, air-conditioned hospital. Tan was the color selected because it blends in with the territory they will be used in and will keep the hospital 10 to 15° cooler than darker colors.

"Everything is here and we continue to build and expand as we go," says Koenig who, in reality, is the commanding officer for Naval Hospital, San Diego. "When our first patient arrived we could not take X-rays or match blood types. Two hours after receiving our first patient X-ray was up and 3 hours later we were matching blood types. We even drew blood from 60 volunteers to actually test our laboratory. We are keeping people alive and are gradually becoming more sophisticated and giving our young corpsmen a tremendous amount of hands-on training."

Operation Safe Haven was designed to tax the hospital to maximum capacity during the 5-day operation. On day three the hospital went into 56-hour continuous operations. Patients arrived at all hours. Medical staffs and Seabees went into port and starboard (12-hour) shifts.

"We want to push this hospital to its limit and we are trying out and testing new equipment," says Koenig, looking in the direction of what appeared to be a partly assembled wheelchair. "We are replacing two to four people on a stretcher with one person on the cart."

"Once our corpsmen learned how to operate the carts, maneuvering through the hospital by one person became easy."

LCPL Williams was now on the

table. He had IVs protruding from both arms, was connected to oxygen, an anesthetist was monitoring vital signs, and a surgeon was closing Williams' stomach incision. Prognosis? Williams would live to fight again.

Mouflage Art

Injuries, artfully prepared by the Army mouflage team, looked real, right down to the squirting blood coming from a severed artery.

Mouflage is a French word the Army uses to mean simulated injuries. COL Radle's guardsmen quickly became experts at creating realism because many deal with the real thing in their daily civilian jobs.

All 10 members worked as nurses or ward attendants in civilian hospitals. Four people worked at trauma centers in California hospitals.

"We use modeling clay to create the basic wound then add fake blood and various makeup colors," says Radle who has been a nurse for 35 years and an Army nurse for 21. She began creating mouflage in 1985.

Marines were scattered in and around the mouflage tent. Some have limbs blown off, others have knife or gunshot wounds, still others have intestines sticking out, or an eyeball hanging from its socket.

Results

Two hundred forty-seven patients were admitted to Fleet Hospital One during Operation Safe Haven. Eleven staff people really became sick or family emergencies forced them to be transferred.

Although fleet hospitals are designed to be self-supporting for 60 days except for water, fuel, and blood, Koenig found that more basic expendables were needed.

"We could have used another shipping container of basic essentials, but I

know this fleet hospital functioned. I know we can take care of real life patients and save lives.

"In some areas morale was a problem. The galley, trying to put out three hot meals per day, worked their staff 20 hours a day. The noon meal was changed totally to prepackaged units thus reducing the workload and improving morale.

"We planned for 619 people to operate the hospital and found the number sufficient but are suggesting minor changes to the mix of job specialties," continued Koenig. "We also closed ward seven to patients and gave our staff a chance to get away and rest. "There were no surprises like 'Oh my God, why didn't we think of that?' Al-





though this was just an exercise, doctors, nurses, and corpsmen really demonstrated the patients' care was their number one priority."

The Navy is the first branch of the military to test fully the new Department of Defense standardized deployable medical system.

Fleet Hospital One is a significant improvement over any previous field-type military hospital, Bienkowski told the 46 evaluators at the conclusion of Operation Safe Haven. "We did find problems with some of the equipment, but those can be corrected. "The exercise proved the Medical Department has reported on board with the fighting Navy/Marine Corps." □



An operating room surgeon scans records late into the night.

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